

Healthy Lifestyle Induction using Fogg Behavior Model

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Abstract— The ubiquitous computing era is promising but challenging to acquire healthy lifestyle. Technology helps to understand the possibilities and user preferences to induce healthy behavior through motivation and right time trigger. Prolonged sitting and unbalanced diet both can be avoided by motivational trigger to right person, at right time and at right situation.

I. INTRODUCTION

Getting motivated for the healthy lifestyle is quite easy for a person but the realization requires motivational trigger at suitable situation. The motivation and possibilities play a vital role at the triggering time [1]. Physical activities and balanced diet are among the key factors of the wellness domain. Wellness is the concerning area of healthcare domain to avoid and prevent the chronic diseases. Our ongoing Mining Minds project has a capability to motivate user through educational and factual contents by capturing his logs and identifying the activities [2]. Intimation of unhealthy behavior with suitable recommendation to support a motivated person needs a real-time monitoring process.

II. PUSH MODEL BASED LIFELOG MONITOR

Lifelog monitor (LLM) focuses on the unhealthy pattern of prolonged sedentary activities and unbalanced diet in a proactive manner. It identifies all those situations, which are unhealthy according to the physiotherapist and nutritionist. These situations are defined in terms of constraints and monitoring conditions as shown in Table. 1. Only prolonged physical activities with metabolic equivalent (METs) value less than 3 and unbalanced diet with respect to the calories intake needs to be monitored. This monitoring process continues till user changes the unhealthy activity himself or gets triggered from LLM.

The LLM not only identifies the situation but also verifies the constraints related to situation [3]. These constraints in fact define the context of a particular situation, which is set by an expert. When unhealthy situation is verified a suitable recommendation is required to avoid that. Initially recommendations are provided by the expert as shown in Table. 1. These recommendations are refined into personalized ones on the basis of the users' preferences, physiological factors (weight, height), location and time. The personalized recommendations are supported with motivational contents about current unhealthy situation.

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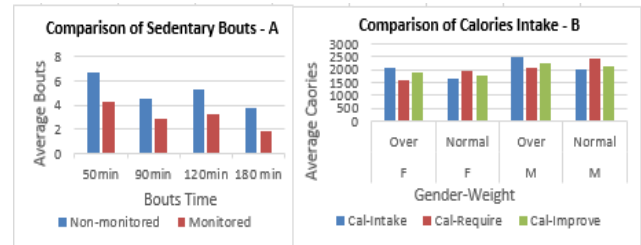
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TABLE 1 MONITORING SITUATION AND RECOMMENDATION

S id	Monitoring Situation		Constraints		Recommendation
	Activity	Target Quantity	Age	Gender	
1	Sitting	30 min	Adult	M/F	Stretch /Stand
2	Lying	60 min	Adult	M/F	Walk/ Jog
3	Eating	2000-2200 Cal	Adult	M	Fiber rich diet
4	Eating	1800-2000 Cal	Adult	F	Low calorie food

The evaluation involved 10 volunteers for 4 weeks who used to spend more than 10 hours per day in their research labs. According to result shown in Fig. 1A prolonged sedentary bouts have decreased. Particularly the long bouts have been reduced to half. Similarly, there is an impact on calories intake. For overweight male category, the calories intake has been decreased about 10% as shown in Fig. 1B.

Figure 1. Comparison of monitored activities and non-monitored activities



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